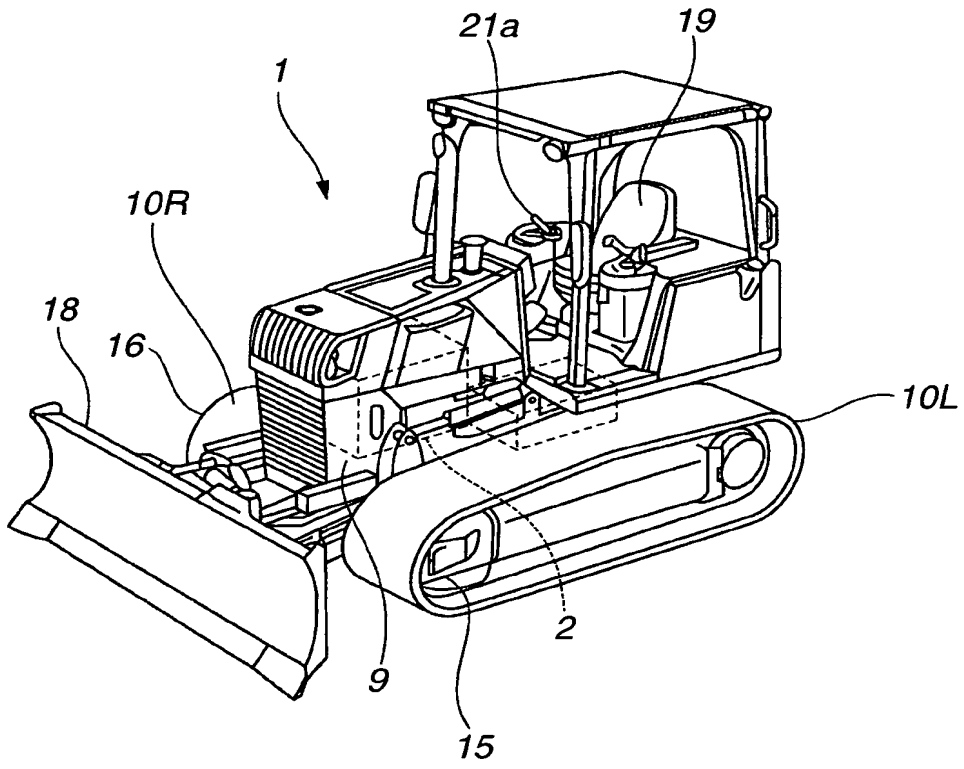


FIG.1

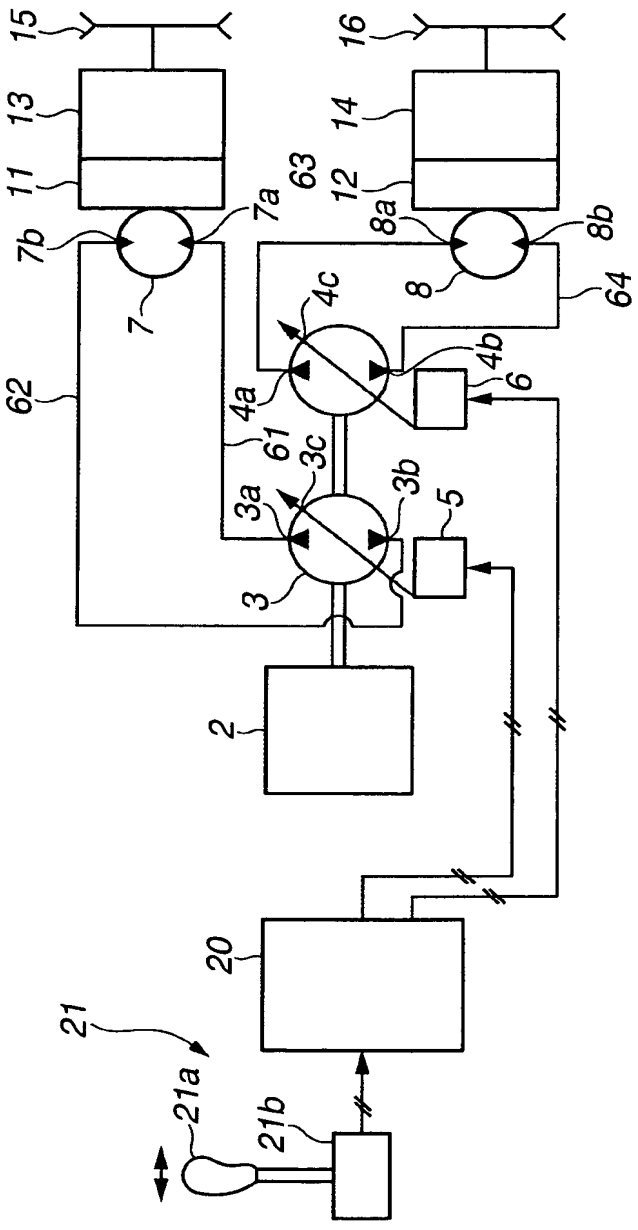

15
16
13
14
11
12
63
7a
8a
8b
7b
8
64
7
4c
4b
6
62
4a
61
3c
3a
3b
5
3
2
20
21
21a
21b

FIG.2

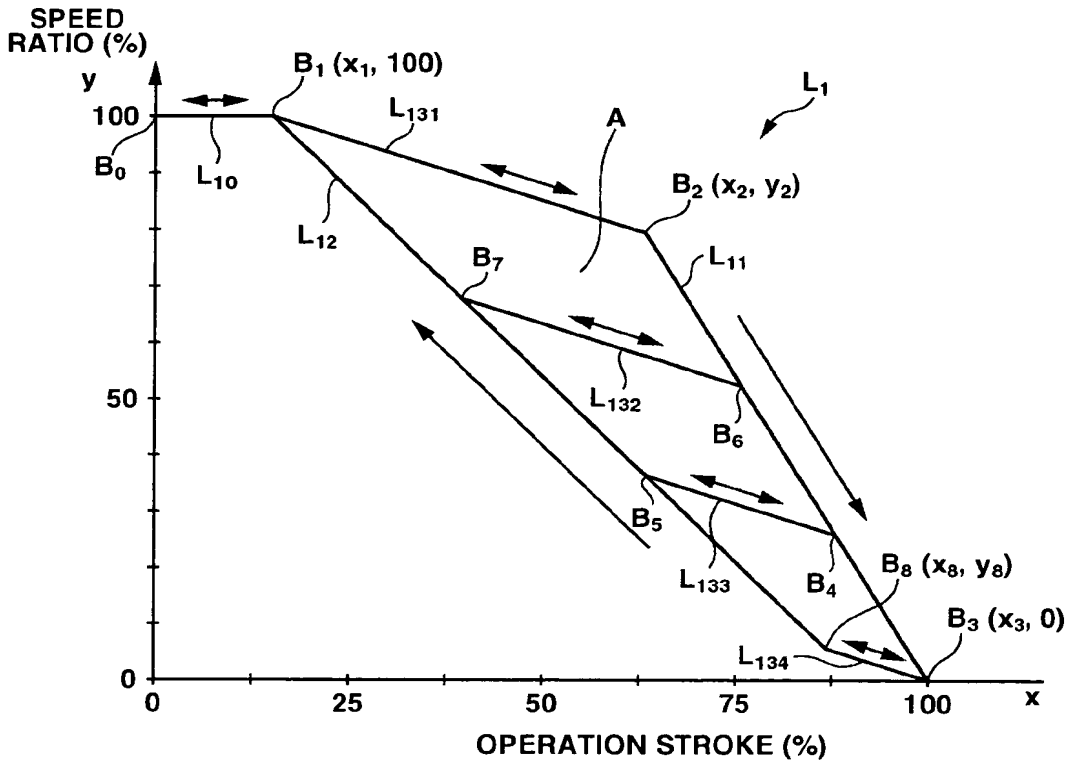

SPEED RATIO (%)
y
100
50
0
B_0
B_1 (x_1, 100)
L_{10}
L_{131}
L_{12}
A
L_1
B_2 (x_2, y_2)
L_{11}
B_7
L_{132}
B_6
B_5
L_{133}
B_4
B_8 (x_8, y_8)
B_3 (x_3, 0)
L_{134}
0
25
50
75
100
x
OPERATION STROKE (%)

FIG.3

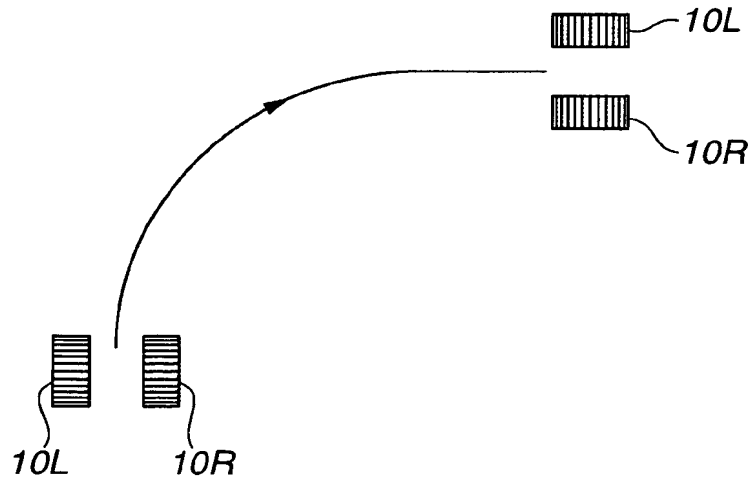

10L
10R
10L
10R

FIG.4

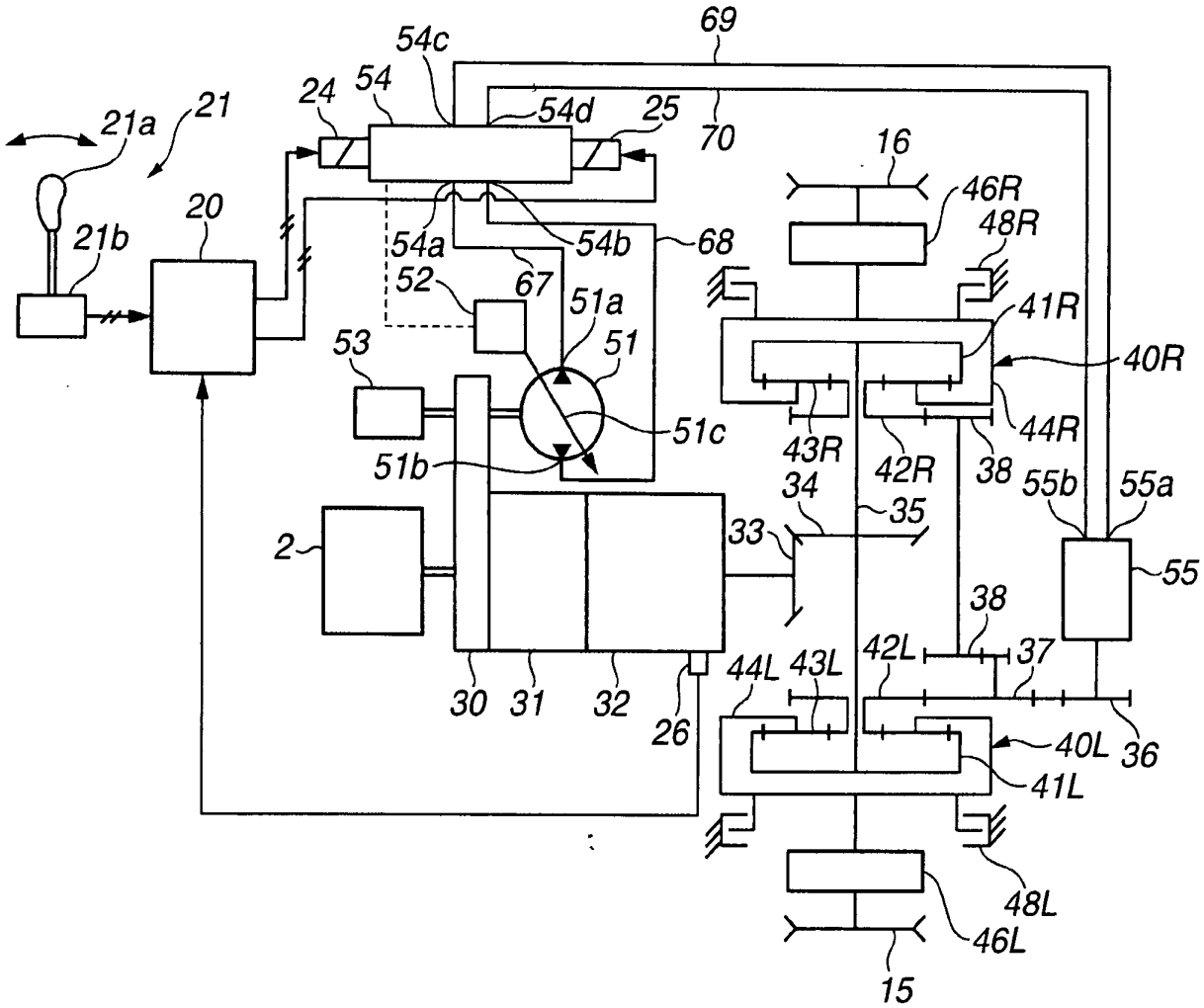

69
54c
24
54
54d
25
70
21a
21
16
46R
48R
21b
20
54a
54b
68
52
67
51a
41R
40R
53
51
51c
44R
43R
42R
38
51b
34
35
55b
55a
2
33
55
38
42L
37
44L
43L
30
31
32
26
40L
36
41L
48L
46L
15

FIG.5

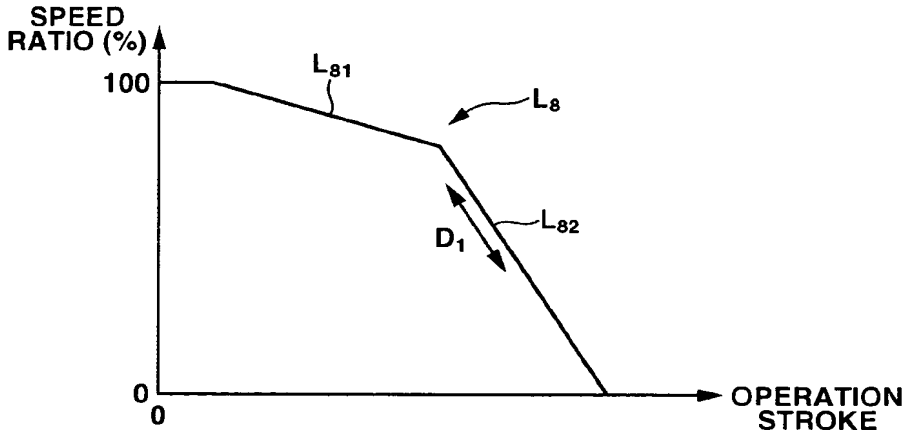

SPEED
RATIO (%)
100
0
0
L_{81}
L_8
L_{82}
D_1
OPERATION
STROKE

FIG.6

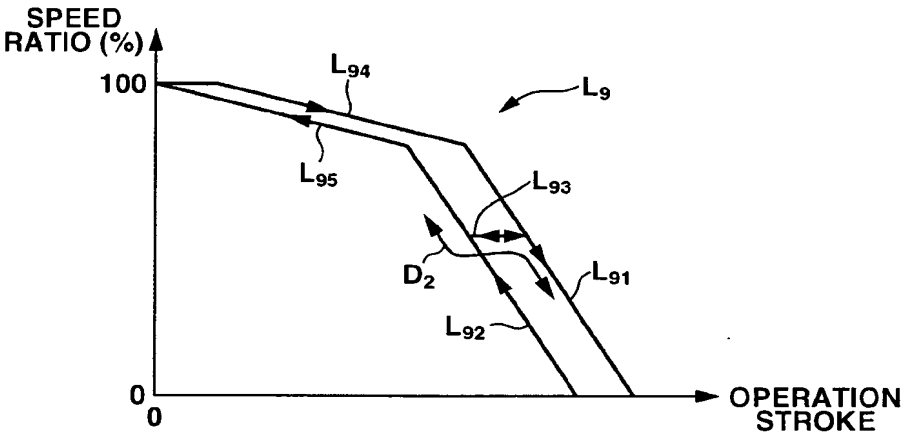

SPEED
RATIO (%)
100
0
0
L_{94}
L_9
L_{95}
L_{93}
D_2
L_{91}
L_{92}
OPERATION
STROKE

FIG.7

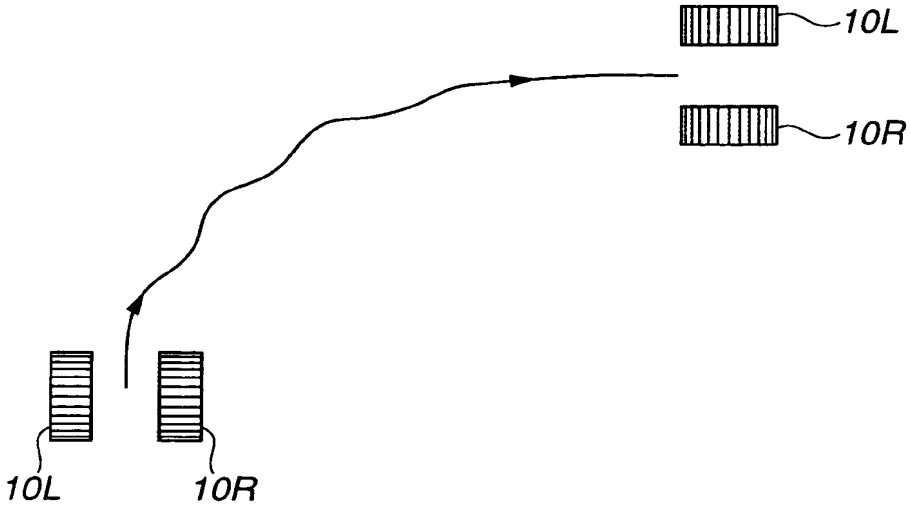

10L
10R
10L
10R

FIG.8

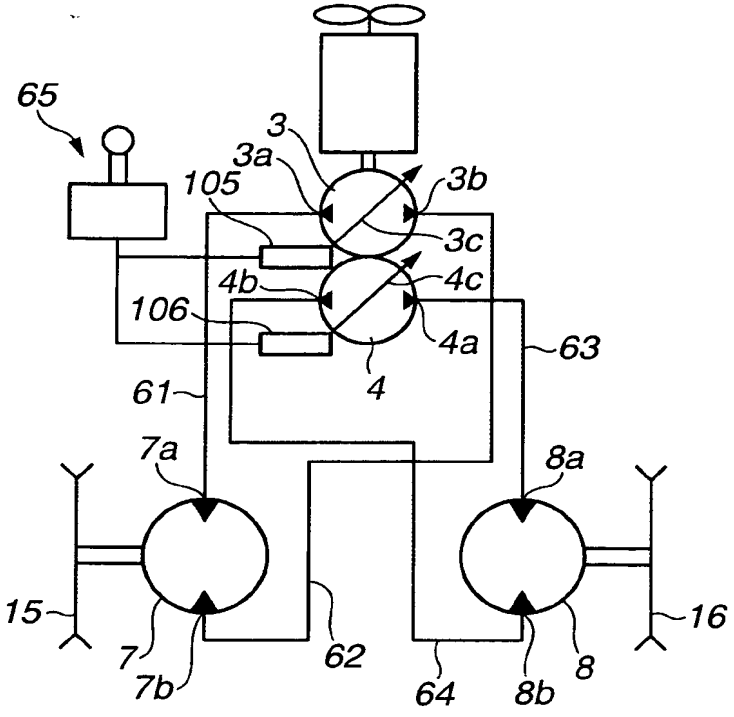

65
3
3a
105
3b
3c
4b
4c
106
4a
63
4
61
7a
8a
15
16
7
7b
62
64
8b
8

FIG.9

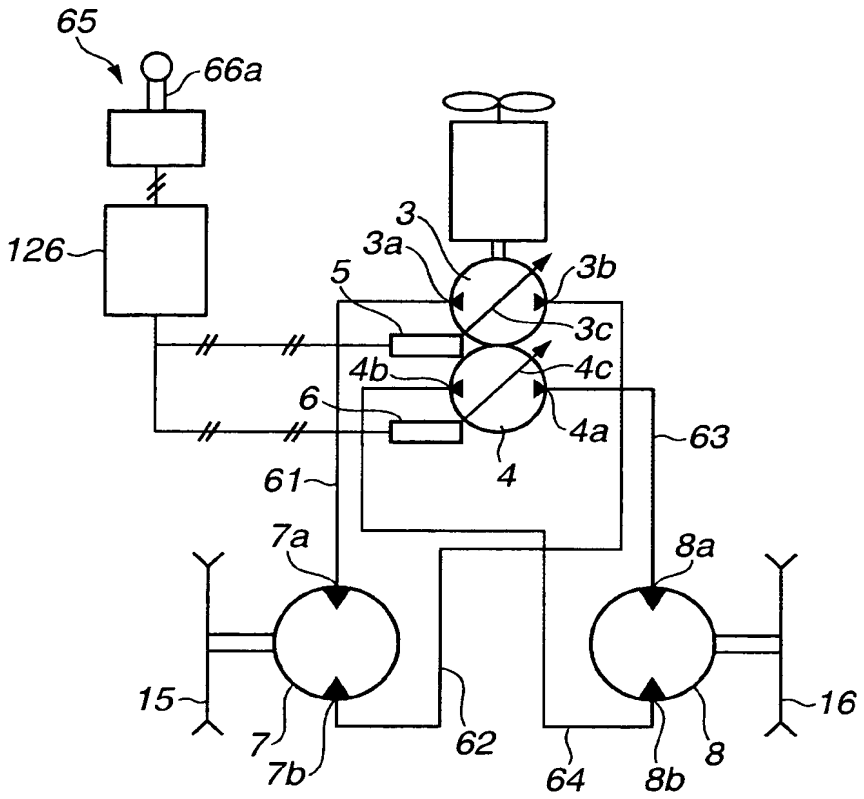

65
66a
126
3
3a
3b
5
3c
4b
4c
6
4a
63
4
61
7a
8a
15
16
7
7b
62
64
8b
8

FIG.10

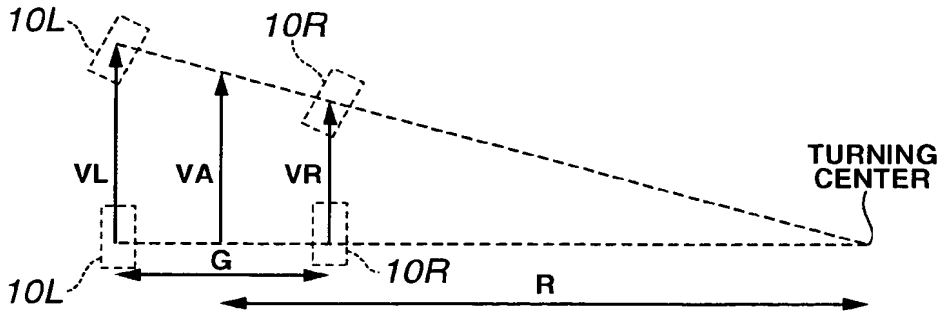

10L
10R
VL
VA
VR
TURNING CENTER
G
10L
10R
R

FIG.11

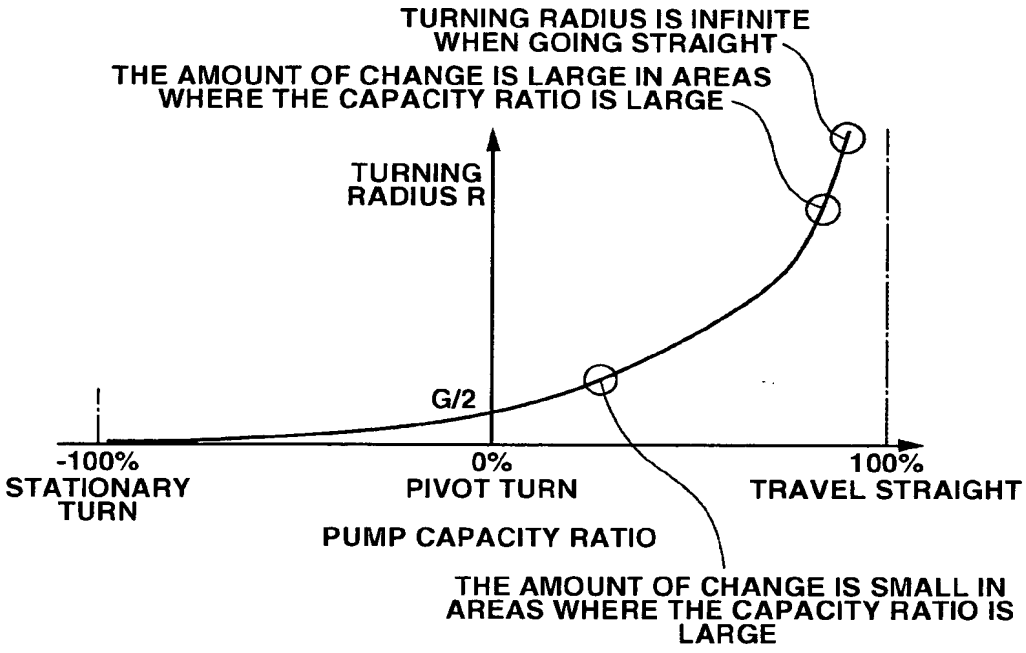

TURNING RADIUS IS INFINITE WHEN GOING STRAIGHT
THE AMOUNT OF CHANGE IS LARGE IN AREAS WHERE THE CAPACITY RATIO IS LARGE
TURNING RADIUS R
G/2
-100%
STATIONARY TURN
0%
PIVOT TURN
100%
TRAVEL STRAIGHT
PUMP CAPACITY RATIO
THE AMOUNT OF CHANGE IS SMALL IN AREAS WHERE THE CAPACITY RATIO IS LARGE

FIG.12

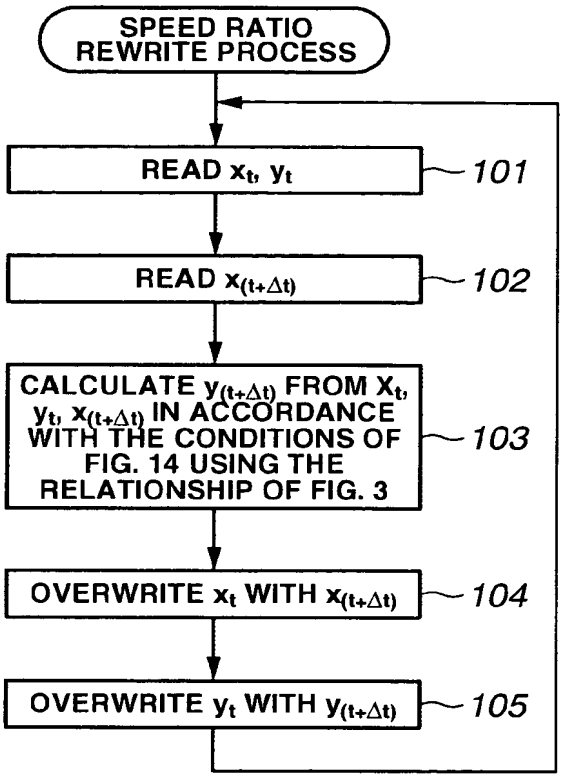

SPEED RATIO REWRITE PROCESS
READ x_t, y_t
101
READ $x_{(t+\Delta t)}$
102
CALCULATE $y_{(t+\Delta t)}$ FROM X_t, y_t, $x_{(t+\Delta t)}$ IN ACCORDANCE WITH THE CONDITIONS OF FIG. 14 USING THE RELATIONSHIP OF FIG. 3
103
OVERWRITE x_t WITH $x_{(t+\Delta t)}$
104
OVERWRITE y_t WITH $y_{(t+\Delta t)}$
105

FIG.13

CALCULATION OF SPEED RATIO $y_{(t+\Delta t)}$

COORDINATES OF POINT (X_t, y_t)	AT POINT B_1	ON LINE L_{131}	AT POINT B_2	ON FIRST LINE L_{11}	AT POINT B_3	ON THIRD LINE L_{134}	AT POINT B_8	ON SECOND LINE L_{12}	WITHIN INTERNAL AREA A	ON LINE L_{10}
$(X_{(t+\Delta t)}-X_t) \geq 0$ (RECLINING OPERATION)	FINE CONTROL AREA IN ACCORDANCE WITH LINE L_{131}	FINE CONTROL AREA IN ACCORDANCE WITH LINE L_{131}	IN ACCORDANCE WITH FIRST LINE L_{11}	IN ACCORDANCE WITH FIRST LINE L_{11}	——	IN ACCORDANCE WITH THIRD LINE L_{134} NEAR PIVOT TURN AREA	IN ACCORDANCE WITH THIRD LINE L_{134} NEAR PIVOT TURN AREA	CHANGE IN ACCORDANCE WITH a OF INTERMEDIATE THIRD LINE	CHANGE IN ACCORDANCE WITH a OF INTERMEDIATE THIRD LINE	IN ACCORDANCE WITH LINE L_{10}
$(X_{(t+\Delta t)}-X_t) < 0$ (RETURNING OPERATION)	IN ACCORDANCE WITH LINE L_{10}	FINE CONTROL AREA IN ACCORDANCE WITH LINE L_{131}	FINE CONTROL AREA IN ACCORDANCE WITH LINE L_{131}	CHANGE IN ACCORDANCE WITH a OF INTERMEDIATE THIRD LINE	IN ACCORDANCE WITH THIRD LINE L_{131} NEAR PIVOT TURN AREA (CHANGE IN ACCORDANCE WITH SLOPE a)	IN ACCORDANCE WITH THIRD LINE L_{134} NEAR PIVOT TURN AREA	IN ACCORDANCE WITH SECOND LINE L_{12}	IN ACCORDANCE WITH SECOND LINE L_{12}	CHANGE IN ACCORDANCE WITH a OF INTERMEDIATE THIRD LINE	IN ACCORDANCE WITH LINE L_{10}

FIG.14

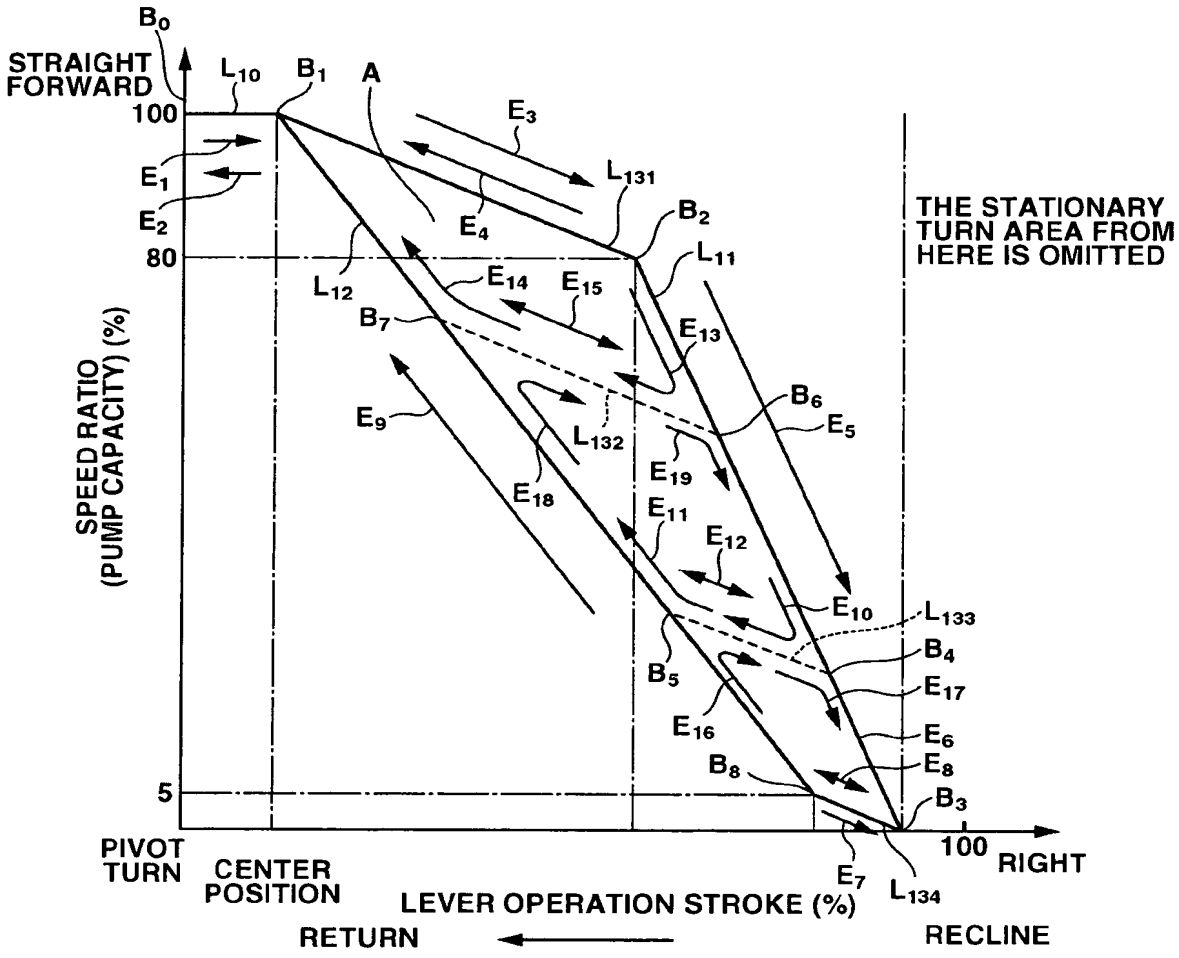

B0
STRAIGHT FORWARD
L10
B1
A
100
E3
L131
E1
E2
E4
B2
THE STATIONARY TURN AREA FROM HERE IS OMITTED
80
L11
L12
E14
E15
B7
E13
SPEED RATIO (PUMP CAPACITY) (%)
B6
E9
E5
L132
E19
E18
E11
E12
E10
L133
B4
B5
E17
E16
E6
B8
E8
5
B3
100
RIGHT
PIVOT TURN
CENTER POSITION
E7
L134
LEVER OPERATION STROKE (%)
RETURN
RECLINE

FIG.15

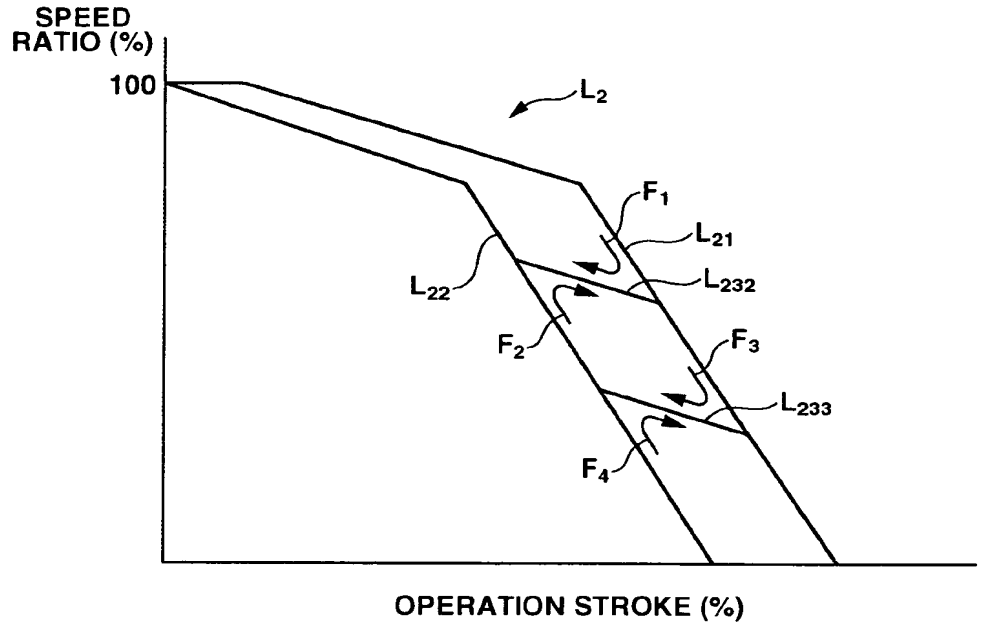


FIG.16A

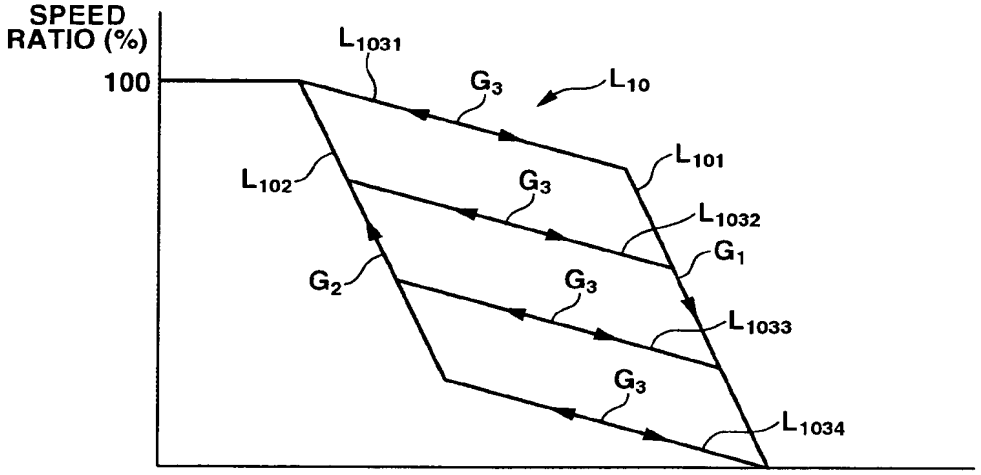


FIG.16B

FIG.17A

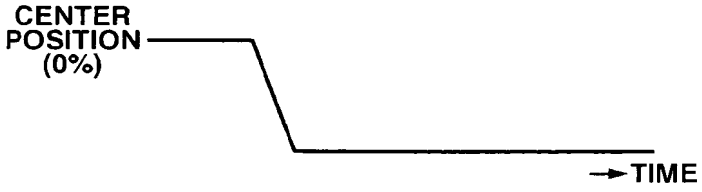


FIG.17B

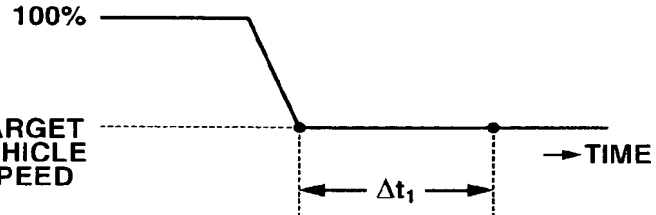


FIG.17C

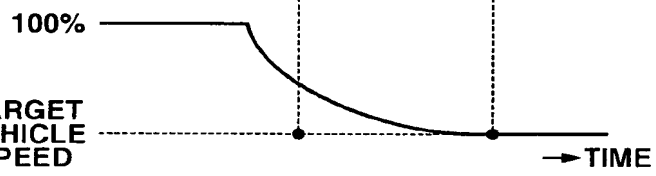


FIG.17D

FIG.17E

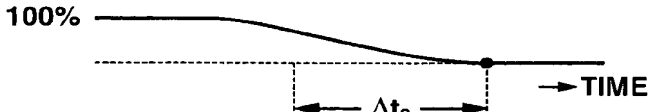


FIG.17F

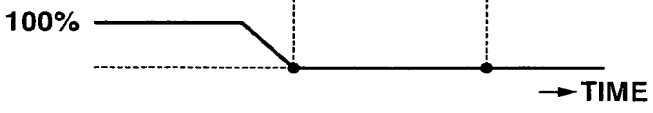
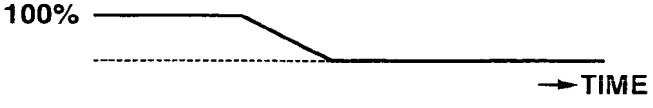


FIG.17G



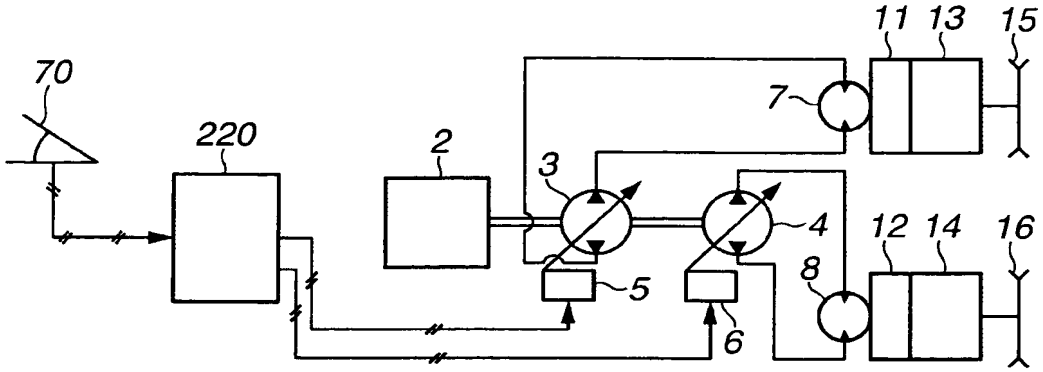


FIG.18A

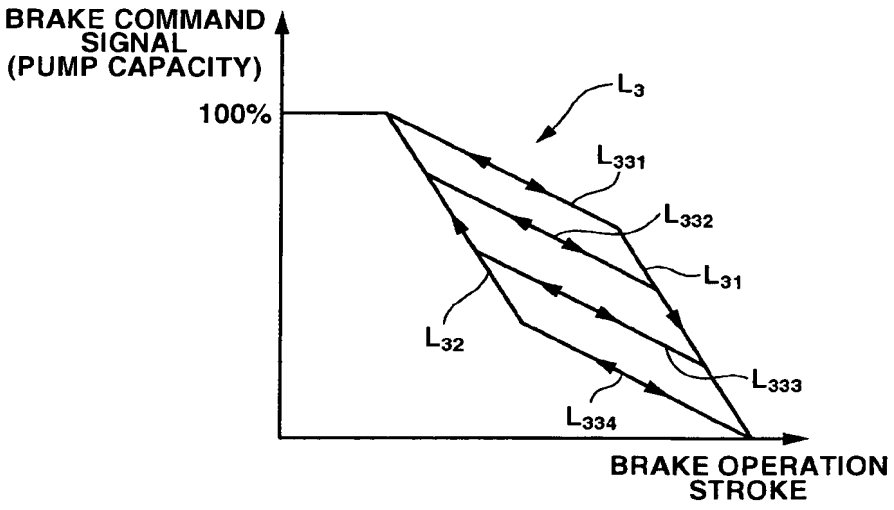


FIG.18B

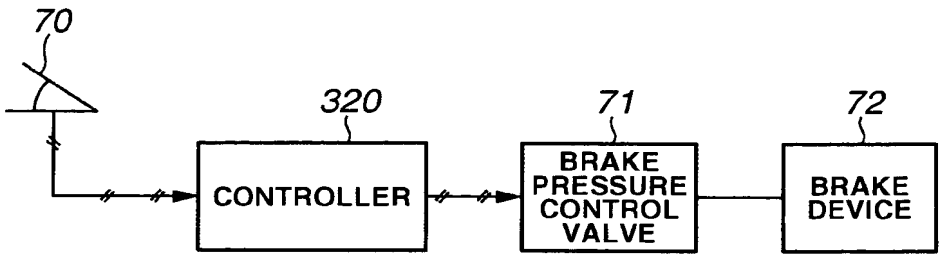


FIG.19A

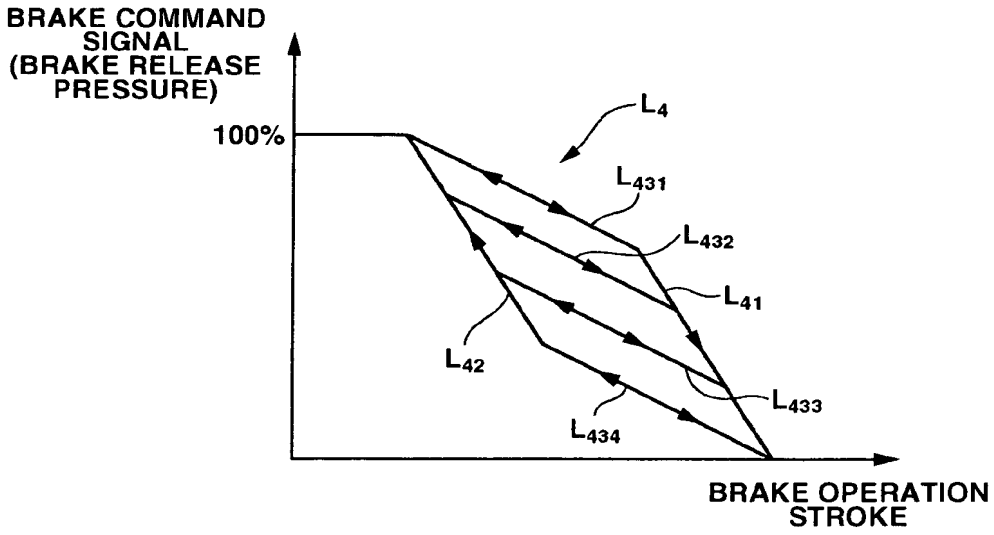


FIG.19B

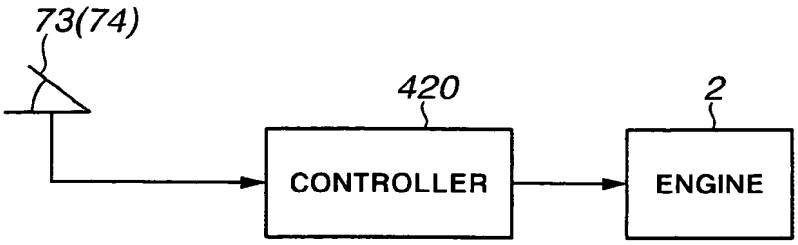


FIG.20A

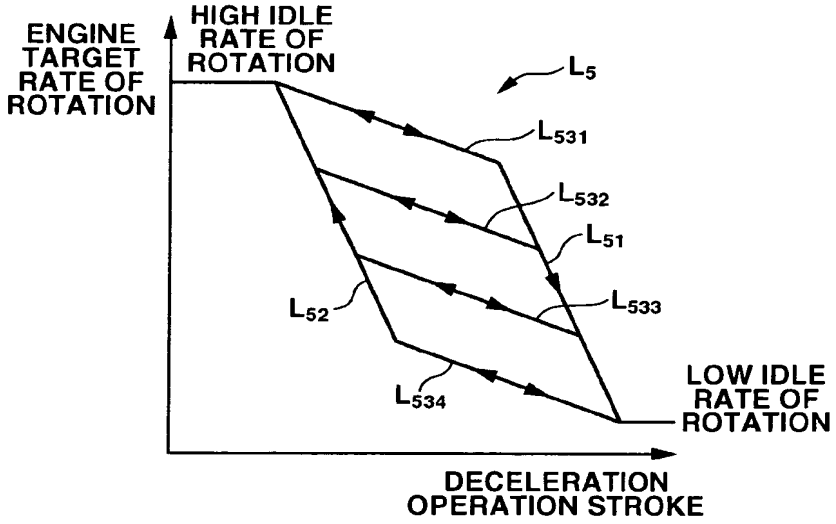


FIG.20B

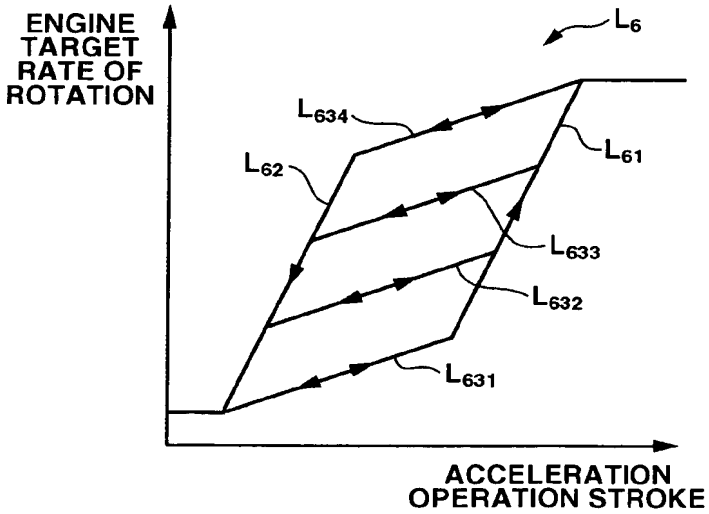


FIG.20C

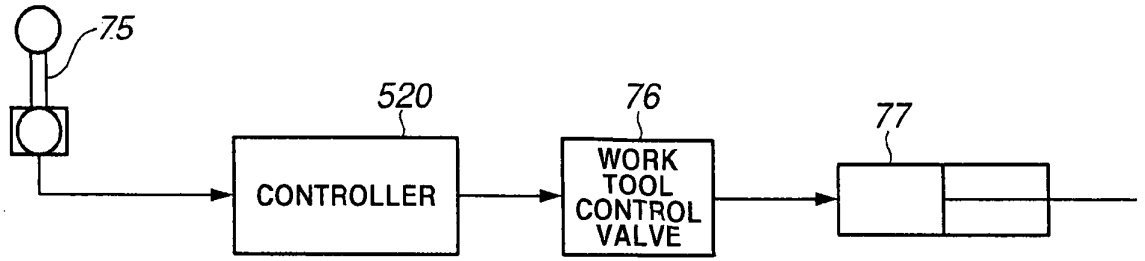


FIG.21A

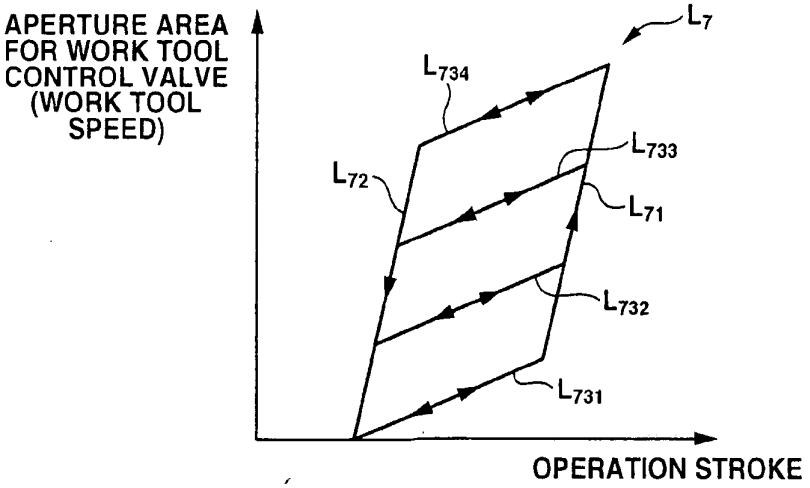


FIG.21B